

Claims

What is claimed is:

1. A method used to form a semiconductor device comprising:

providing a semiconductor wafer section comprising:

at least a first semiconductor die and a second semiconductor die;

at least one conductive pad on each of the first and second dice;

a kerf area interposed between the first and second dice;

providing a bond wire having first and second ends;

attaching the first end of the bond wire to the conductive pad of the first die;

attaching the second end of the bond wire to only one of the conductive pad of the second die and the kerf area.
2. The method of claim 1 wherein the bond wire is a first bond wire and the method further comprises:

attaching the second end of the first bond wire to the kerf area of the wafer section;

providing a second bond wire having first and second ends;

connecting the first end of the second bond wire to the conductive pad of the second semiconductor die; and

connecting the second end of the second bond wire to the kerf of the semiconductor wafer section.

3. The method of claim 2 further comprising, subsequent to connecting the first end of the first bond wire with the conductive pad of the first die, and subsequent to connecting the first end of the second bond wire with the conductive pad of the second die, and subsequent to connecting the second ends of the first and second bond wire with the kerf area:

encapsulating the first and second bond wires, the conductive pads of the first and second semiconductor dice, and at least a portion of a major surface of the wafer section with an encapsulation material; and

subsequent to the encapsulation, segmenting the wafer section and the encapsulation material into first and second segments, wherein the first segment comprises the first semiconductor die and a portion of the first bond wire and the second segment comprises the second semiconductor die and a portion of the second bond wire.

4. A method used to form a semiconductor device, comprising:

providing an unsingularized semiconductor wafer section comprising at least a first semiconductor die having at least one bond pad and a second semiconductor die having at least one bond pad, wherein the first and second semiconductor dice are separated from each other by a kerf area;

attaching a first end of a first bond wire to the bond pad of the first semiconductor wafer section and attaching a second end of the first bond wire to the kerf area;

attaching a first end of a second bond wire to the bond pad of the second semiconductor wafer section and attaching a second end of the second bond wire to the kerf area; and

subsequent to attaching the first and second bond wires, segmenting the first semiconductor wafer section from the second semiconductor wafer section.

5. The method of claim 4 further comprising providing an encapsulation material over a major surface of the unsingularized wafer section to encapsulate the first and second bond wires.

6. The method of claim 5 further comprising segmenting the first semiconductor wafer section from the second semiconductor wafer section using a saw which removes at least a portion of the kerf area, the first and second bond wires, and the encapsulation material.

7. The method of claim 5 further comprising segmenting the first semiconductor wafer section from the second semiconductor wafer section using an etching process which removes at least a portion of the kerf area, the first and second bond wires, and the encapsulation material.

8. The method of claim 5 further comprising exposing the first bond wire at a first surface of the encapsulation material and exposing the second bond wire at a second surface of the encapsulation material during the segmenting of the first semiconductor wafer section from the second semiconductor wafer section.

9. The method of claim 8 further comprising, subsequent to exposing the first bond wire at the first surface of the encapsulation material and exposing the second bond wire at the second surface of the encapsulation material, removing a portion of the encapsulation material at the first and second surfaces to result in a protrusion of the first and second bond wires from the first and second surfaces of the encapsulation material.

10. The method of claim 9 further comprising heating the protruding first and second bond wires to form a rounded contact from each of the first and second bond wires.

11. The method of claim 5 further comprising providing the encapsulation material over only one surface of the unsingularized wafer section.

12. A method used to form a semiconductor device, comprising:

providing an unsingularized semiconductor wafer section comprising at least a first semiconductor die having a first bond pad and a second semiconductor die having a second bond pad, wherein the first and second semiconductor dice are separated from each other by a kerf area;

attaching a first end of a bond wire to the first bond pad and attaching a second end of the bond wire to the second bond pad such that the bond wire overlies the kerf area; and

subsequent to attaching the bond wire to the first and second bond pads, segmenting the first semiconductor wafer section from the second semiconductor wafer section.

13. The method of claim 12 further comprising providing an encapsulation material over a major surface of the unsingularized wafer section to encapsulate the bond wire.

14. The method of claim 13 further comprising segmenting the first semiconductor wafer section from the second semiconductor wafer section using a saw which removes at least a portion of the kerf area, the bond wire, and the encapsulation material.

15. The method of claim 13 further comprising segmenting the first semiconductor wafer section from the second semiconductor wafer section using an etching process which removes at least a portion of the kerf area, the bond wire, and the encapsulation material.

16. The method of claim 13 further comprising exposing the bond wire at a first exposed surface of the encapsulation material which is connected to the first semiconductor wafer section and exposing the bond wire at a second exposed surface of the encapsulation material which is connected to the second semiconductor wafer section during the segmenting of the first semiconductor wafer section from the second semiconductor wafer section.

17. The method of claim 16 further comprising, subsequent to exposing the bond wire at the first and second surfaces of the encapsulation material, removing a portion of the encapsulation material at the first surface to result in a protrusion of the bond wire from the first surface of the encapsulation material.

18. The method of claim 17 further comprising heating the protruding bond wire to form a rounded contact from the bond wire.

19. The method of claim 13 further comprising providing the encapsulation material over only one surface of the unsingularized wafer section.